



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

| APPLICATION NO. | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO. | CONFIRMATION NO. |
|-----------------|-------------|----------------------|---------------------|------------------|
| 10/815,845 | 04/02/2004 | Catherine Martinelli | Q80562 | 9689 |

23373 7590 01/10/2006

SUGHRUE MION, PLLC
2100 PENNSYLVANIA AVENUE, N.W.
SUITE 800
WASHINGTON, DC 20037

| |
|----------|
| EXAMINER |
|----------|

DIACOU, ARI M

| | |
|----------|--------------|
| ART UNIT | PAPER NUMBER |
|----------|--------------|

3663

DATE MAILED: 01/10/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

| | | | |
|------------------------------|--------------------------------------|--|--|
| Office Action Summary | Application No. 10/815,845 | Applicant(s) MARTINELLI ET AL. | |
| | Examiner Ari M. Diacou | Art Unit 3663 | |

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 15 December 2005.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 11-18 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 11-18 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|---|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date: _____ |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| Paper No(s)/Mail Date: _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Response to Arguments

1. Applicant's arguments, see page 8, filed 12-15-2005, with respect to the 112 first paragraph rejection regarding the pump modulator have been fully considered and are persuasive. The rejection of claims 11-18 *on these grounds* has been withdrawn.
2. Applicant's arguments, see pages 9 and 10, filed 12-15-2005, with respect to the 35 U.S.C. 102(e) rejection of all of the claims have been fully considered and are persuasive. The rejection of claims 11-18 has been withdrawn.
3. Applicant's argument regarding the 35 U.S.C. 112 ¶ 1 rejection of claims 11-18 filed 12-15-2005 regarding the ubiquity of the function $\text{MIN}_{i,j}(f(a_i, b_j))$ have been fully considered but they are not persuasive.

At the time of the original office action was written, the examiner was aware of the difference between the functional form of the applicant's function $\text{MIN}_{i,j}(f(a_i, b_j))$ and $\text{MIN}_{i,j}(f(i, j))$ but was lax in expressing it. The examiner thanks the applicant for asserting the difference between the two expressions.

After reviewing the reference submitted by the applicant, the examiner is convinced that the original hypothesis made by the examiner as to the meaning of $\text{MIN}_{i,j}(f(a_i, b_j))$ was correct. However, the examiner is unconvinced that a single company's algorithm (Mathworks) is sufficiently ubiquitous to rule out any other

Art Unit: 3663

interpretation that one skilled in the art could conjecture, if they were unfamiliar with programming in MATLAB.

For instance, the implementation of a dual-indexed MIN function in Mathematica yields a different result than in MATLAB:

Mathematica 5.2 (<http://documents.wolfram.com/mathematica/functions/Min>):

Min

▼ Usage

- `Min[x1, x2, ...]` yields the numerically smallest of the x_i .
- `Min[{x1, x2, ...}, {y1, ...}, ...]` yields the smallest element of any of the lists.

MATLAB 7.1 (<http://www.mathworks.com/access/helpdesk/help/techdoc/ref/min.html>):

min

Minimum elements of an array

Syntax

- `C = min(A)`
- `C = min(A,B)`
- `C = min(A, [], dim)`
- `[C,I] = min(...)`

Description

`C = min(A)` returns the smallest elements along different dimensions of an array.

If A is a vector, `min(A)` returns the smallest element in A .

If A is a matrix, `min(A)` treats the columns of A as vectors, returning a row vector containing the minimum element from each column.

TI-83 Silver Ed. ([http://education.ti.com/guidebooks/graphing/83p/83m\\$book-eng.pdf](http://education.ti.com/guidebooks/graphing/83p/83m$book-eng.pdf)) (pp 81-82):

Art Unit: 3663

min(, max(

min((minimum value) returns the smaller of *valueA* and *valueB* or the smallest element in *list*. If *listA* and *listB* are compared, **min(** returns a list of the smaller of each pair of elements. If *list* and *value* are compared, **min(** compares each element in *list* with *value*.

max((maximum value) returns the larger of *valueA* and *valueB* or the largest element in *list*. If *listA* and *listB* are compared, **max(** returns a list of the larger of each pair of elements. If *list* and *value* are compared, **max(** compares each element in *list* with *value*.

| | |
|--------------------------------|---------|
| <code>min(3, 2+2)</code> | 3 |
| <code>min({3, 4, 5}, 4)</code> | {3 4 4} |
| <code>max({4, 5, 6})</code> | 6 |

min(valueA,valueB)**min(list)****min(listA,listB)****min(list,value)****max(valueA,valueB)****max(list)****max(listA,listB)****max(list,value)**

Note: **min(** and **max(** also are available on the LIST MATH menu.

Therefore, in the case of a dual-indexed MIN function, Mathematica would return a single value that would be the minimum for both lists, MATLAB would return an array giving the minimum for each list, and the TI-83 would return an array that returned the minimum of the set $\{a_i, b_i\}$ for each element in the lists.

Furthermore, since the applicant has neither pointed out the differences between their meaning of $\text{MIN}_{i,j}(f(a_i, b_j))$ and the meaning ascertained by the examiner, nor provided an explanation of their interpretation of the function in either the remarks or the specification, the examiner will not withdraw the rejection until the applicant's meaning of $\text{MIN}_{i,j}(f(a_i, b_j))$ is elaborated in the specification.

Art Unit: 3663

4. The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

5. Claims 11-18 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the enablement requirement. The claims 11-13 and 17 contain subject matter which was not described in the specification in such a way as to enable one skilled in the art to which it pertains, or with which it is most nearly connected, to make and/or use the invention. The use of the functions $MIN_{i,j}$ and MIN_i are not specifically pointed out in the disclosure, and are not standard in the art. In the interest of expedited prosecution, the examiner assumes that $MIN_{i,j}(f(a_i, b_j))$ is taken to mean the expression $f_{\min}(a_i, b_j)$ which has a minimum numerical value, where f_{\min} is taken from the set of all expressions f where i and j vary independently as allowed by the invention. In other words, f_c is the lowest frequency signal transmitting deliberate information that can be ascertained from the multiplexed input signals and pumping signals.

Conclusion

6. The references made herein are done so for the convenience of the applicant. They are in no way intended to be limiting. The prior art should be considered in its entirety.
7. The prior art which is cited but not relied upon is considered pertinent to applicant's disclosure.

8. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than **SIX MONTHS** from the mailing date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Ari M. Diacou whose telephone number is (571) 272-5591. The examiner can normally be reached on Monday - Friday, 8:30 am - 5:00 pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Jack Keith can be reached on (571) 272-6878. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

AMD 9-12-2005



JACK KEITH
SUPERVISORY PATENT EXAMINER